

What is claimed is:

1. A semiconductor device comprising:

a semiconductor substrate provided with a trench for isolation; and

an insulating film formed to cover said
5 trench for relaxing an internal stress of said semiconductor substrate, wherein said insulating film includes:

a first portion disposed to be opposed to a bottom of said trench, and

10 a second portion disposed to be opposed to a side of said trench, and

wherein a first thickness of said first portion is different from a second thickness of said second portion.

2. The semiconductor device according to claim 1, wherein said first thickness of said first portion is thinner than said second thickness of said second portion.

3. The semiconductor device according to claim 2, further comprising another insulating film in said trench, wherein said another insulating film exerts a compressive stress on said semiconductor
5 substrate, and

wherein said insulating film exerts a

tensile stress on said semiconductor substrate.

4. The semiconductor device according to claim 2, wherein said insulating film is formed of one selected from a group consisting of silicon nitride and silicon oxinitride.

5. A semiconductor device comprising:
a semiconductor substrate provided with a trench for isolation; and
an insulating film formed to cover said
5 trench for relaxing an internal stress of said semiconductor substrate, wherein said insulating film is opposed to a side of said trench and is not opposed to a bottom of said trench.

6. The semiconductor device according to claim 5, further comprising another insulating film in said trench, wherein said another insulating film exerts a compressive stress on said semiconductor
5 substrate, and

wherein said insulating film exerts a tensile stress on said semiconductor substrate.

7. The semiconductor device according to claim 5, wherein said insulating film is formed of one selected from a group consisting of silicon

nitride and silicon oxinitride.

8. A semiconductor device comprising:

a semiconductor substrate provided with a trench for isolation;

a silicon oxide film formed to cover said
5 trench; and

an insulating film formed on said silicon oxide film, wherein said insulating film exerts a tensile stress on said semiconductor substrate, and

10 wherein said insulating film includes:

a first portion disposed to be opposed to a bottom of said trench, and

a second portion disposed to be opposed to a side of said trench, and

15 wherein a first thickness of said first portion is thinner than a second thickness of said second portion.

9. The semiconductor device according to claim 8, wherein said insulating film is formed of one selected from a group consisting of silicon nitride and silicon oxinitride.

10. A semiconductor device comprising:

a semiconductor substrate provided with a

trench for isolation;

a silicon oxide film formed to cover said
5 trench; and

an insulating film formed on said silicon
oxide film, wherein said insulating film exerts a
tensile stress on said semiconductor substrate,
and,

10 wherein said insulating film is opposed to
a side of said trench and is not opposed to a
bottom of said trench.

11. The semiconductor device according to claim
10, wherein said insulating film is formed of one
selected from a group consisting of silicon
nitride and silicon oxinitride.

12. A semiconductor device comprising:

a semiconductor substrate provided with a
trench for isolation;

a silicon oxide film formed to cover said
5 trench; and

an insulating film disposed on said silicon
oxide film, wherein said insulating film is
formed of one selected from a group consisting of
silicon nitride and silicon oxinitride, and

10 wherein said insulating film includes:

a first portion disposed to be opposed

to a bottom of said trench, and

a second portion disposed to be opposed
to a side of said trench, and

15 wherein a first thickness of said first
portion is thinner than a second thickness of
said second portion.

13. A semiconductor device comprising:

a semiconductor substrate provided with a
trench for isolation;

a silicon oxide film formed to cover said
5 trench; and

an insulating film disposed on said silicon
oxide film, wherein said insulating film is
formed of one selected from a group consisting of
silicon nitride and silicon oxinitride, and

10 wherein said insulating film is opposed to
a side of said trench and is not opposed to a
bottom of said trench.

14. A method of fabricating a semiconductor
device comprising:

forming a trench for isolation in said
semiconductor substrate; and

5 forming an insulating film to cover said
trench for relaxing an internal stress of said
silicon substrate, wherein said insulating film

includes:

10 a first portion disposed to be opposed
to a bottom of said trench, and

a second portion disposed to be opposed
to a side of said trench, and

15 wherein a first thickness of said first
portion is different from a second thickness of
said second portion.

15. The method according to claim 14, wherein
said first thickness of said first portion is
thinner than said second thickness of said second
portion.

16. The method according to claim 15, further
comprising:

5 forming another insulating film in said
trench, wherein said another insulating film
exerts a compressive stress on said semiconductor
substrate, and said insulating film exerts a
tensile stress on said semiconductor substrate.

17. The method according to claim 15, wherein
said insulating film is formed of one selected
from a group consisting of silicon oxide and
silicon oxinitride.

18. A method for fabricating a semiconductor device comprising:

forming a trench for isolation in a semiconductor substrate; and

5 forming an insulating film to cover said trench for relaxing an internal stress of said silicon substrate, wherein said insulating film is opposed to a side of said trench and is not opposed to a bottom of said trench.

19. The method according to claim 18, further comprising:

forming another insulating film in said trench, wherein said another insulating film
5 exerts a compressive stress on said semiconductor substrate, and said insulating film exerts a tensile stress on said semiconductor substrate.

20. The method according to claim 18, wherein said insulating film is formed of one selected from a group consisting of silicon oxide and silicon oxinitride.

21. A method for fabricating a semiconductor device comprising:

forming a trench for isolation in a semiconductor substrate;

5 forming a silicon oxide film to cover said trench; and

 forming an insulating film on said silicon oxide film, wherein said insulating film exerts a compressive stress on said silicon substrate, and

10 wherein said insulating film includes:

 a first portion disposed to be opposed to a bottom of said trench, and

 a second portion disposed to be opposed to a side of said trench, and

15 wherein a first thickness of said first portion is thinner than a second thickness of said second portion.

22. The method according to claim 21, wherein said insulating film is formed of one selected from a group consisting of silicon oxide and silicon oxinitride.

23. A method for fabricating a semiconductor device comprising:

 forming a trench for isolation in a semiconductor substrate;

5 forming a silicon oxide film to cover said trench; and

 forming an insulating film on said silicon oxide film, wherein said insulating film is

opposed to a side of said trench and is not
10 opposed to a bottom of said trench.

24. The method according to claim 23, wherein
said insulating film is formed of one selected
from a group consisting of silicon oxide and
silicon oxinitride.

25. A method for fabricating a semiconductor
device comprising:

forming a trench for isolation in a
semiconductor substrate;

5 forming a silicon oxide film to cover said
trench; and

forming an insulating film on said silicon
oxide film, wherein said insulating film is
formed of one selected from a group consisting of
10 silicon nitride and silicon oxinitride, wherein
said insulating film includes:

a first portion disposed to be opposed
to a bottom of said trench, and

a second portion disposed to be opposed
15 to a side of said trench, and

wherein a first thickness of said first
portion is different from a second thickness of
said second portion.

26. A method for fabricating a semiconductor device comprising:

forming a trench for isolation in a semiconductor substrate;

5 forming a silicon oxide film to cover said trench; and

forming an insulating film on said silicon oxide film, wherein said insulating film is formed of one selected from a group consisting of
10 silicon nitride and silicon oxinitride, wherein said insulating film is opposed to a side of said trench and is not opposed to a bottom of said trench.